

Ozone and Carbon Monoxide 1997-99 Air Quality Data Update

The following is a brief summary of EPA's 1999 air quality update for ozone and carbon monoxide nonattainment areas.

Ozone (O₃): Today's list updates ozone air quality monitoring data for the three year period, 1997-99. During this current three year period,

- 39 of the original 98 areas designated nonattainment for the 1-hour O₃ National Ambient Air Quality Standard (NAAQS) in 1991 failed to meet the NAAQS in 1997-99 (Table 1).
- 7 additional counties failed to meet the 1-hour O₃ NAAQS in 1997-99 (Table 2).
- 332 counties have average annual 4th maximum 8-hour daily maximum O₃ concentrations in 1997-99 greater than the level of the 8-hour O₃ NAAQS (Table 3).

EPA set the 1-hour O₃ standard at 0.12 parts per million (ppm) daily maximum 1-hour average concentration not to be exceeded more than once per year on average. Compliance with the 1-hour ozone standard is judged on the basis of the most recent three years of ambient air quality monitoring data. The 1-hour ozone standard is not met at a monitoring site if the average number of estimated exceedances of the ozone standard is greater than 1.0 (1.05 rounds up). The level of the 8-hour O₃ NAAQS is 0.08 ppm¹. The 8-hour O₃ standard is not met if the 3-year average of the annual 4th highest daily maximum 8-hour O₃ concentration is greater than 0.08 ppm (0.085 rounds up).

Carbon Monoxide (CO): Today's list updates CO air quality data for the two year period, 1998-99. During this two year period,

- 3 of the original 42 areas designated nonattainment for the 8-hour CO NAAQS in 1991 failed to meet the CO NAAQS in 1998-99 (Table 4).
- 3 additional areas failed to meet the CO NAAQS in 1998-99 (Table 4).

EPA's National Ambient Air Quality Standard for carbon monoxide is 9 parts per million (ppm) nonoverlapping 8-hour average concentration not to be exceeded more than once per year. The CO standard is not met at a monitoring site if there are two or more exceedances of the level of the CO NAAQS in either of the two most recent calendar years of monitoring data.

Notes:

¹ In a May 1999 split decision, the U.S. Court of Appeals for the D.C. Circuit limited the manner in which EPA can implement the eight-hour standard, which the Agency issued in 1997. EPA appealed the May 1999 decision to the U.S. Supreme Court, which has agreed to hear the case. The Court of Appeals did not question the need for the new standard or the science behind it. That standard, based on 8-hour averages of ozone rather than the previous 1-hour average, reflects a more realistic measure of people's exposure and is more protective of public health.

For information concerning these data contact:

James Hemby

Air Quality & Trends Analysis/U.S. EPA/MD-14

Research Triangle Park, NC 27711

(919)541-5459 (voice)

(919)541-1903 (fax)

hemby.james@epa.gov

Table 1. Areas designated nonattainment in 1991 ⁽¹⁾ that fail to meet the 1-hr ozone NAAQS in 1997-99

State	Designated Area	O ₃ Design Value ⁽²⁾ (ppm)	Avg. Expected Exceedance Rate ⁽³⁾
		1997-99	1997-99
GA	Atlanta	0.156	10.2
MD	Baltimore	0.152	4.5
LA	Baton Rouge	0.126	1.8
TX	Beaumont-Port Arthur	0.130	1.7
AL	Birmingham	0.128	1.7
NC	Charlotte-Gastonia ⁽⁴⁾	0.132	2.0
IL	Chicago-Gary-Lake County	0.126	1.7
TX	Dallas-Fort Worth	0.135	9.9
MI	Detroit-Ann Arbor ⁽⁴⁾	0.126	1.3
CT	Greater Connecticut	0.147	2.7
TX	Houston-Galveston-Brazoria	0.203	11.7
WV	Huntington-Ashland ⁽⁴⁾	0.129	2.3
IL	Jersey Co. ⁽⁴⁾	0.127	1.7
MD	Kent County and Queen Anne's Co.	0.130	2.3
TN	Knoxville ⁽⁴⁾	0.138	3.7
PA	Lancaster	0.128	1.7
CA	Los Angeles South Coast Air Basin	0.211	39.3
IN	Louisville	0.130	2.1
WI	Manitowoc Co	0.128	1.3
TN	Memphis ⁽⁴⁾	0.126	1.7
WI	Milwaukee-Racine	0.134	2.1
TN	Nashville ⁽⁴⁾	0.127	2.0
NY	New York-N. New Jersey-Long Island, NY-NJ-CT	0.145	3.7
PA	Philadelphia-Wilmington-Trenton, PA-NJ-DE-MD	0.153	4.4
PA	Pittsburgh-Beaver Valley	0.128	1.3
ME	Portland ⁽⁵⁾	0.125	1.3
NC	Raleigh-Durham ⁽⁴⁾	0.127	1.4
VA	Richmond ⁽⁴⁾	0.134	2.7
CA	Sacramento Metro	0.148	5.2
CA	San Diego	0.135	3.0

State	Designated Area	O ₃ Design Value ⁽²⁾ (ppm)	Avg. Expected Exceedance Rate ⁽³⁾
		1997-99	1997-99
CA	San Francisco-Bay	0.139	2.7
CA	San Joaquin Valley	0.161	13.5
WI	Sheboygan ⁽⁴⁾	0.134	2.0
CA	Southeast Desert Modified AQMD	0.170	24.1
MA	Springfield (W. Mass)	0.128	1.7
MO	St. Louis	0.131	2.0
DE	Sussex Co ⁽⁵⁾	0.125	1.3
CA	Ventura Co	0.134	2.7
DC	Washington	0.132	4.2

Notes:

1. Designations and classifications for ozone nonattainment areas as published in the Federal Register, 40 CFR Part 81. *Unclassified and transitional nonattainment areas are not included in Table 1.*

2. The updated air quality design value is estimated for the 1997-99 period using all air quality data reported to EPA's Aerometric Information Retrieval System (AIRS). The computation procedures follow EPA guidance for calculating design values (Laxton Memorandum, June 18, 1990). For sites with three complete years of monitoring data, the air quality design value is the fourth highest daily maximum 1-hour ozone concentration, because the standard allows one exceedance per year on average. It is important to note that the 1990 Clean Air Act Amendments required that nonattainment areas be classified on the basis of the design value at the time the Amendments were passed, generally the 1987-89 period was used.

3. The level of the 1-hour ozone Ambient Air Quality standard is 0.12 parts per million (ppm) daily maximum 1-hour average concentration not to be exceeded more than once per year on average. The average estimated number of exceedances column shows the number of days the 0.12 ppm 1-hour ozone standard was exceeded on average at the site recording the highest updated air quality value. This computation is performed after adjustment for any missing sampling days during the 3-year period, 1996-98.

4. Areas presently designated attainment for the 1-hour ozone NAAQS that fail to meet the standard in 1997-99.

5. Areas to be reinstated to nonattainment for the 1-hour NAAQS that fail to meet the standard in 1997-99.

6. At the publication date for this update, air quality data for two areas: Poughkeepsie, NY; and Hancock and Waldo Co.s, ME are still under review and evaluation. Currently, it is unclear whether or not these areas violate the 1-hour ozone NAAQS. When a final determination is made, this table will be updated.

Table 2. Additional counties failing to meet the 1-hour ozone NAAQS in 1997-99

State	County (Area)	O ₃ Design Value ⁽¹⁾ (ppm)	Avg. Expected Exceedance Rate ⁽²⁾
		1997-99	1997-99
AR	Crittenden Co. ⁽⁴⁾ (Memphis, TN)	0.124	1.3
CA	Amador Co. ⁽⁴⁾ (adjacent to Sacramento)	0.128	1.8
CA	Imperial Co. ⁽³⁾ (Calexico, CA)	0.139	4.7
GA	Bibb Co. ⁽⁴⁾ (Macon, GA)	0.134	3.0
NC	Rowan Co. ⁽⁴⁾ (Charlotte-Gastonia-Rock Hill, NC-SC)	0.128	1.7
TN	Jefferson Co. ⁽⁴⁾ (adjacent to Knoxville)	0.127	3.2
TX	Gregg Co. ⁽⁴⁾ (Longview-Marshall)	0.134	3.0

Notes:

1. The updated air quality design value is estimated for the 1997-99 period using all air quality data reported to EPA's Aerometric Information Retrieval System (AIRS). The computation procedures follow EPA guidance for calculating design values (Laxton Memorandum, June 18, 1990). For sites with three complete years of monitoring data, the air quality design value is the fourth highest daily maximum 1-hour ozone concentration, because the standard allows one exceedance per year on average. It is important to note that the 1990 Clean Air Act Amendments required that nonattainment areas be classified on the basis of the design value at the time the Amendments were passed, generally the 1987-89 period was used.

2. The level of the 1-hour ozone Ambient Air Quality standard is 0.12 parts per million (ppm) daily maximum 1-hour average concentration not to be exceeded more than once per year on average. The average estimated number of exceedances column shows the number of days the 0.12 ppm 1-hour ozone standard was exceeded on average at the site recording the highest updated air quality value. This computation is performed after adjustment for any missing sampling days during the 3-year period, 1997-99.

3. Section 185a nonattainment area that fails to meet the standard in 1997-99.

4. Areas presently designated attainment for the 1-hour ozone NAAQS that fail to meet the standard in 1997-99.

Table 3. Counties failing to meet the 8-hr ozone NAAQS, 1997-99

State	County	Design Value (ppb)
Alabama	Clay Co	88
	Jefferson Co	93
	Madison Co	90
	Mobile Co	88
	Shelby Co	97
Arizona	Maricopa Co	88
Arkansas	Crittenden Co	90
California	Alameda Co	85
	Amador Co	96
	Calaveras Co	96
	El Dorado Co	102
	Fresno Co	113
	Imperial Co	91
	Kern Co	109
	Kings Co	99
	Los Angeles Co	118
	Mariposa Co	94
	Merced Co	97
	Nevada Co	88
	Placer Co	97
	Riverside Co	124
	Sacramento Co	101
	San Bernardino Co	147
	San Diego Co	99
	San Joaquin Co	85
	Shasta Co	95
	Solano Co	85
	Stanislaus Co	95
	Sutter Co	89
	Tehama Co	91
	Tulare Co	102
	Tuolumne Co	92
	Ventura Co	106
Connecticut	Fairfield Co	103

Table 3. Counties failing to meet the 8-hr ozone NAAQS, 1997-99

State	County	Design Value (ppb)
	Hartford Co	91
	Litchfield Co	97
	Middlesex Co	99
	New Haven Co	103
	New London Co	94
	Tolland Co	95
Delaware	Kent Co	99
	New Castle Co	100
	Sussex Co	99
Dist. Of Columbia		
	Washington	100
Florida		
	Escambia Co	91
	Hillsborough Co	87
Georgia		
	Bibb Co	104
	Dawson Co	88
	De Kalb Co	105
	Douglas Co	101
	Fulton Co	118
	Gwinnett Co	100
	Muscogee Co	89
	Paulding Co	97
	Richmond Co	92
	Rockdale Co	115
Illinois		
	Cook Co	90
	Jersey Co	91
	Lake Co	88
Indiana		
	Madison Co	87
	Allen Co	88
	Clark Co	96
	Floyd Co	92
	Hamilton Co	97
	Hancock Co	92
	Johnson Co	89
	Lake Co	91

Table 3. Counties failing to meet the 8-hr ozone NAAQS, 1997-99

State	County	Design Value (ppb)
	La Porte Co	91
	Madison Co	90
	Marion Co	93
	Morgan Co	90
	Porter Co	93
	Posey Co	91
	St Joseph Co	91
	Vanderburgh Co	94
	Warrick Co	94
Kentucky		
	Boone Co	85
	Boyd Co	85
	Bullitt Co	89
	Campbell Co	89
	Christian Co	86
	Daviess Co	87
	Edmonson Co	93
	Fayette Co	87
	Graves Co	87
	Greenup Co	90
	Hancock Co	91
	Henderson Co	86
	Jefferson Co	95
	Kenton Co	88
	Livingston Co	95
	Mc Cracken Co	89
	Mc Lean Co	90
	Oldham Co	96
	Simpson Co	91
Louisiana		
	Ascension Par	88
	Bossier Par	88
	Caddo Par	87
	Calcasieu Par	88
	East Baton Rouge Par	92
	Iberville Par	91
	Jefferson Par	85
	Lafourche Par	85
	Livingston Par	87
	West Baton Rouge Par	85
Maine		
	Cumberland Co	89

Table 3. Counties failing to meet the 8-hr ozone NAAQS, 1997-99

State	County	Design Value (ppb)
	Hancock Co	89
	Sagadahoc Co	92
	York Co	92
Maryland	Anne Arundel Co	109
	Baltimore Co	99
	Calvert Co	90
	Carroll Co	95
	Cecil Co	110
	Charles Co	104
	Harford Co	106
	Kent Co	100
	Montgomery Co	95
	Prince Georges Co	106
	Baltimore	90
Massachusetts	Barnstable Co	95
	Bristol Co	91
	Essex Co	93
	Hampden Co	91
	Hampshire Co	99
	Middlesex Co	93
	Worcester Co	94
Michigan	Allegan Co	94
	Benzie Co	89
	Berrien Co	96
	Cass Co	92
	Genesee Co	89
	Huron Co	85
	Kalamazoo Co	87
	Kent Co	85 *
	Macomb Co	95
	Mason Co	93
	Muskegon Co	93
	Ottawa Co	87
	St Clair Co	88
	Wayne Co	91
Mississippi	De Soto Co	88
	Hancock Co	86

Table 3. Counties failing to meet the 8-hr ozone NAAQS, 1997-99

State	County	Design Value (ppb)
	Jackson Co	93
Missouri	Clay Co	91
	Jefferson Co	92
	Platte Co	85
	St Charles Co	95
	Ste Genevieve Co	88
	St Louis Co	89
New Hampshire	Hillsborough Co	89
	Rockingham Co	90
New Jersey	Atlantic Co	97
	Camden Co	106
	Cumberland Co	99
	Essex Co	93
	Gloucester Co	102
	Hudson Co	100
	Hunterdon Co	102
	Mercer Co	104
	Middlesex Co	105
	Monmouth Co	94
	Morris Co	98
	Ocean Co	107
New York	Bronx Co	88
	Chautauqua Co	89
	Dutchess Co	90
	Erie Co	85
	Jefferson Co	90
	Niagara Co	86
	Orange Co	90
	Putnam Co	94
	Richmond Co	105
	Suffolk Co	98
	Wayne Co	86
	Westchester Co	98
North Carolina	Alexander Co	86
	Caldwell Co	90

Table 3. Counties failing to meet the 8-hr ozone NAAQS, 1997-99

State	County	Design Value (ppb)
	Caswell Co	94
	Chatham Co	88
	Cumberland Co	92
	Davie Co	98
	Duplin Co	85
	Durham Co	88
	Edgecombe Co	90
	Forsyth Co	97
	Franklin Co	93
	Granville Co	92
	Guilford Co	92
	Haywood Co	94
	Johnston Co	95
	Lincoln Co	87
	Mecklenburg Co	104
	Northampton Co	87
	Pitt Co	93
	Rockingham Co	85
	Rowan Co	99
	Wake Co	101
Ohio	Allen Co	88
	Ashtabula Co	92
	Butler Co	93
	Clark Co	94
	Clermont Co	93
	Clinton Co	98
	Cuyahoga Co	88
	Delaware Co	97
	Franklin Co	93
	Geauga Co	91
	Greene Co	93
	Hamilton Co	91
	Knox Co	91
	Lake Co	99
	Lawrence Co	93
	Licking Co	92
	Lorain Co	87
	Lucas Co	85
	Madison Co	94
	Mahoning Co	91
	Medina Co	89
	Miami Co	88
	Montgomery Co	92

Table 3. Counties failing to meet the 8-hr ozone NAAQS, 1997-99

State	County	Design Value (ppb)
	Portage Co	93
	Stark Co	91
	Summit Co	94
	Trumbull Co	95
	Warren Co	95
	Washington Co	90
	Wood Co	86
Oklahoma		
	Oklahoma Co	86
	Tulsa Co	88
Pennsylvania		
	Allegheny Co	101
	Armstrong Co	86
	Beaver Co	92
	Berks Co	96
	Blair Co	95
	Bucks Co	103
	Cambria Co	93
	Centre Co	90
	Clearfield Co	93
	Dauphin Co	94
	Delaware Co	100
	Erie Co	93
	Franklin Co	97
	Greene Co	97
	Lackawanna Co	90
	Lancaster Co	101
	Lehigh Co	100
	Luzerne Co	92
	Mercer Co	96
	Monroe Co	97
	Montgomery Co	104
	Northampton Co	93
	Perry Co	90
	Philadelphia Co	90
	Washington Co	101
	Westmoreland Co	85
	York Co	94
Rhode Island		
	Kent Co	92
South Carolina		

Table 3. Counties failing to meet the 8-hr ozone NAAQS, 1997-99

State	County	Design Value (ppb)
	Abbeville Co	86
	Aiken Co	89
	Anderson Co	95
	Barnwell Co	88
	Cherokee Co	93
	Chester Co	92
	Darlington Co	88
	Edgefield Co	85
	Oconee Co	86
	Pickens Co	90
	Richland Co	92
	Spartanburg Co	94
	York Co	86
Tennessee	Anderson Co	88
	Blount Co	104
	Davidson Co	91
	Hamilton Co	94
	Haywood Co	88
	Jefferson Co	101
	Knox Co	102
	Lawrence Co	88
	Putnam Co	88
	Rutherford Co	90
	Sevier Co	100
	Shelby Co	95
	Sullivan Co	91
	Sumner Co	102
	Williamson Co	95
	Wilson Co	87
Texas	Bexar Co	88
	Brazoria Co	95
	Collin Co	101
	Dallas Co	92
	Denton Co	100
	Ellis Co	92
	Galveston Co	109
	Gregg Co	100
	Harris Co	118
	Jefferson Co	88
	Smith Co	91
	Tarrant Co	99

Table 3. Counties failing to meet the 8-hr ozone NAAQS, 1997-99

State	County	Design Value (ppb)
	Travis Co	88
Virginia	Arlington Co	97
	Caroline Co	92
	Charles City Co	96
	Chesterfield Co	91
	Fairfax Co	96
	Fauquier Co	88
	Frederick Co	90
	Hanover Co	99
	Henrico Co	96
	Madison Co	96
	Prince William Co	91
	Roanoke Co	90
	Stafford Co	91
	Alexandria	91
	Hampton	94
	Suffolk	90
West Virginia	Cabell Co	95
	Greenbrier Co	90
	Hancock Co	87
	Kanawha Co	90
	Ohio Co	85
	Wood Co	91
Wisconsin	Door Co	97
	Jefferson Co	85
	Kenosha Co	95
	Kewaunee Co	94
	Manitowoc Co	97
	Milwaukee Co	91
	Ozaukee Co	97
	Racine Co	91
	Rock Co	87
	Sheboygan Co	93
	Walworth Co	85

Notes:

* = Based on 1996-98 data

Table 3. Counties failing to meet the 8-hr ozone NAAQS, 1997-99

State	County	Design Value (ppb)
--------------	---------------	-----------------------------------

The level of the 8-hour ozone (O₃) National Ambient Air Quality Standard (NAAQS) is 0.08 parts per million (ppm). The air quality design value for the 8-hour O₃ NAAQS is the 3-year average of the annual 4th highest daily maximum 8-hour average O₃ concentration. The 8-hour O₃ NAAQS is not met when the 8-hour ozone design value is greater than 0.08 ppm (85 ppb rounds up).

In a May 1999 split decision, the U.S. Court of Appeals for the D.C. Circuit limited the manner in which EPA can implement the eight-hour standard, which the Agency issued in 1997. EPA appealed the May 1999 decision to the U.S. Supreme Court, which has agreed to hear the case. The Court of Appeals did not question the need for the new standard or the science behind it. That standard, based on 8-hour averages of ozone rather than the previous 1-hour average, reflects a more realistic measure of people's exposure and is more protective of public health.

For additional information on air quality data relative to the 8-hour ozone NAAQS, refer to <http://www.epa.gov/ttn/rto/areas/aqdata.htm>

Table 4. Areas not meeting the 8-hour Carbon Monoxide National Ambient Air Quality Standard, 1998-99

Metropolitan Area	1998-99 Design Value ⁽¹⁾ (ppm)	1998		1999	
		2 nd Max ⁽²⁾	# Exc ⁽³⁾	2 nd Max ⁽²⁾	# Exc ⁽³⁾
Designated CO nonattainment areas					
Fairbanks, AK	10.3	10.2	2	10.3	2
Las Vegas, NV	10.1	10.1	2	8.1	0
Los Angeles-Long Beach, CA	11.5	11.5	13	11.1	8
Additional areas					
Calexico, CA	14.4	13.3	8	14.4	13
Des Moines, IA	10.4	10.1	2	2.1	0
Weirton, WV	13.2	13.2	6	4.3	0
Number of areas not meeting the NAAQS	6		6		3

Notes:

1. The level of the 8-hour National Ambient Air Quality Standard for carbon monoxide is 9 parts per million (ppm) not to be exceeded more than once per year. The design value for the 8-hour CO NAAQS is the highest annual second maximum nonoverlapping 8-hour concentration during the most recent two years.

2. Annual second highest nonoverlapping 8-hour average CO concentration.

3. Number of nonoverlapping exceedances of the 8-hour CO NAAQS.

SOURCE: U.S. EPA's Aerometric Information Retrieval System (AIRS)